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THE WILD BOTANIC GARDEN IN GLENWOOD PARK, MINNEAPOLIS.

By Eloise Butler.

The most interesting features of America to a foreigner are the Indian and his primitive mode of life, soon to become a matter of tradition, and our wild scenery, with its indigenous flora and fauna, which are fast disappearing in the neighborhood of settlements and under the march of so-called improvements. Indeed, to the older residents of Minneapolis most of their favorite haunts in "the deep, tangled wildwood" exist only in memory. The prairie at Minnehaha is burned over annually by mischievous boys; the shy, woodland plants are dwindling out from our river banks; the pools and ponds, teeming with algae, as the microscopic desmids and diatoms of marvellous beauty, many of which were new to the world, have been drained and with the drying up of the water, the orchids, the insectivorous plants, and myriads of other species have vanished, that cannot thrive elsewhere.

Hence the students of botany and the lovers of wild nature have been forced to go farther and farther afield, as to the shores of White Bear and Minnetonka; but even there the land has been platted into building lots and ruthlessly stripped of those exquisite features that Nature, the greatest landscape gardener, has for so many years been perfecting. Many of the cottagers on the lake shores are imbued with conventional ideas of plant decoration more appropriate for city grounds, and condemn their neighbors who are striving to preserve the wildness, for a lack of neatness in not using a lawn mower, and in not pulling down the vine-tangles in which birds nest and sing,—apparently dissatisfied until the wilderness is reduced to one dead level of monotonous, songless tameness.

Again, under favorable, natural conditions, to see all the plants that are in bloom on any given day in Minnesota, would necessitate a journey of many miles, by reason of the differences in temperature and elevation, the varying factors of moisture, soil content, exposure to light, freaks of distribution, and the unequal struggles in the battle for existence.

Therefore, to preserve intact and within easy reach some of our vanishing wild land; to maintain a depot of plant supplies for the schools; to afford an opportunity to study the problems of forestry and ecology at first hand; and to represent, as far as it can be represented in a limited space, the flora of Minnesota—for the benefit of students of botany and lovers of nature—the teachers of botany in Minneapolis and other interested citizens petitioned the park board to set aside a tract of land for a wild botanic garden. The teachers were to supervise the garden and the board were to protect the property and defray the necessary expenses. The site selected by the teachers and generously granted by the board lies in Glenwood Park, the largest and perhaps the most beautiful of all our

parks, containing as it does ponds, pools and bogs, a diversity of soil and slopes, and wooded heights commanding extensive views.

The garden was opened the twentieth of April, 1907. It is reached at present by the Bryn Mawr, the Fourth and Sixth avenue north, and the Western avenue street railways and is about a mile from their respective termini. It lies just beyond Glenwood lake, long known as Keegan's on Western avenue, and occupies a depression of land northeast of the boulevard intersecting the park, and is directly opposite Birch pond, one of the loveliest spots in the city.

A particular reason for selecting this place was the undrained tamarack swamp, such swamps being the abode of the rarest and most interesting plants. At first, about three acres were given over to the garden, comprising besides the tamarack swamp, a bit of meadow and wooded slope. Since then, more than twice as much land acquired by a subsequent purchase has been added, that greatly enhances the value of the garden.

A small, winding brook runs through the treeless, eastern portion of the swamp. This has been widened near where it leaves the garden into a little pond, in which is to be cultivated the leading aquatics; and the wayward curves of the brook are accentuated by plantings of forget-me-not, cardinal flower, and other brookside favorites. In the pond also the algae thrive, among them the desmids whose beautiful forms might be utilized in decorative designs for china, wall paper and textile fabrics.

All of the essentials for the growth of plants are found in the garden,—variants in water supply, protection from cold or drying winds, inclines with different exposures, wooded and treeless swamps and uplands, and a rich and varied soil content. Even the sand plants have been provided for by means of an accident—a quantity of sand, heaped up for the boulevard, having been washed by a storm into a portion of the enclosure.

The wild appearance of the garden is to be strictly maintained, and no trace of artificiality nor of human interference is to be evident. Plants are to be allowed to grow as they will, not as people may wish them to grow. Only native or naturalized Minnesotan species are to be admitted, and each plant when introduced is to be accommodated with an environment similar to its original one, and them left to take care of itself as in the wild open, with only the natural fertilization furnished by decaying vegetation. No pruning nor thinning out will be permitted, except what may be necessary for paths by which to penetrate the thickets and for healthful growth. Plants in excess may be removed, when others more desirable have been procured to replace them.

The most abundant trees of the swamp are the tamarack, the canoe and the yellow birch and black ash. More sparsely grow among them red maple, box elder, and basswood; and, among the shrubs are vigorous growths of dogwoods, willows, viburnums, poison sumach, dwarf birch and *Ilex verticillata*. Bordering the swamp area are the white and the red elm, large-toothed poplar, hackberry, hop-hornbeam, hawthorns, and a superabundance of staghorn sumach, hazel and prickly ash. The undershrubs are represented

by rank masses of raspberry, blackberry and wild rose; and the vines by wild grape, Virginia creeper and bitter sweet.

On the uplands flourish the oaks,—the burr, the red, the scarlet, and the white. The largest white oak in Minneapolis is an inhabitant of the garden. It is dying atop, but it is about to undergo surgical treatment to prolong its life. The white birches have crept up from the swamp and mingled with the oaks, among them a beautiful, eight-boled specimen. Twenty species of trees and thirty-nine of shrubs have been identified as indigenous to the garden.

In specifying the herbs mention must be made of the large specimen of *Aralia racemosa*, or spikenard, growing on the borders of the swamp. Near by the wild calla flourishes in its adopted home and its relative *Symplocarpus*, the skunk cabbage, one of our earliest bog plants to bloom, for it literally thaws its way through the ice. Deep in the recesses of the swamp are the orchids—coral root, *habenarias*, and our state flower, the showy *cypripedium*. Of the orchid family, either indigenous or introduced, are now in the garden six species of *cypripedium*, eight of *habenaria*, *Orchis spectabilis*, *Pogonia*, *Calopogon*, *Arethusa*, two species of twayblade (*Liparis*), *Aplectrum*, coral-root, and three species of rattlesnake plantain (*Epipactis*). Imbedded in the sphagnum, close by the lady's slippers is the pitcher plant, the only species of this latitude. The pitcher leaves are for the purpose of entrapping insects, with which the plant ekes out its food. An insect seldom escapes, by reason of the inner, slippery surface of the pitchers and their stiff, downward-pointing hairs. The pistil of the flower expands into an umbrella at the top, to keep the pollen and the nectar dry.

In the treeless swamp is an abundance of the tiny, round-leaved sundew (*Drosera rotundifolia*), another insectivorous plant. The motile, sensitive hairs on the leaves are tipped with glands resembling dewdrops; but which, unlike dew, do not disappear under the influence of the sun,—hence the name, sundew. The leaf is a first-class fly-trap, and the glistening glands contain an active, digestive principle. When a thirsty insect lights on a leaf, the hairs bend over it and firmly grasp it; the more the insect struggles, the tighter it is held; more and more hairs entangle it, and finally the whole leaf rounds over it. The fluid in the globules then oozes out and digests the victim.

Cat-tails abound in the neighborhood of the brook. Near them have been established colonies of sweet flag (*Acorus*) and fragrant vanilla grass, used by the Indians in basketry. In their season the rosy swamp milkweed (*Asclepias incarnata*), asters and golden-rods glorify the meadow. One of the most precious possessions of the garden is the twin-flower named for the great Linnaeus and said to be one of his favorite flowers. The day is memorable on which it is first enjoyed in its perfection. The wild garden is its only station in Minneapolis.

With the *Linnaea* is found the dwarf cornel, also local in Minneapolis, the herbaceous relative of the dogwood shrubs, valued for hedges on account of their ornamental fruits and stems. The fruit of this cornel is red and edible and is commonly called bunchberry. Other indigenous rarities of the meadow are three-leaved smilacina,

Menyanthes, Tofeldia, Chelone, marsh rosemary and the small cranberry (*Vaccinium Oxycoccus*). Especially prized are the gentians,—the larger and the smaller fringed and closed, all abundant and of magnificent growth. The former, pronounced the most beautiful blue flower of the world, florists have but recently learned how to cultivate. The tall blue lobelia and three eupatoriums,—the pale purple Jo-Pye weed, the less striking boneset, with its grayish flowers, and the pure white-flowered snakeroot—are other adornments of the meadow.

The wooded slopes of the garden are an attractive adjunct by reason of the artistic arrangement of the trees and the rich and varied coloring of the autumnal foliage. In the rich soil under the trees, adjusted to their requisite degrees of moisture are our most conspicuous shade plants, among them *Sanguinaria*, three species of *Erythronium*, five of *Trillium*, and two *dicentras*,—Dutchman's breeches and squirrel corn.

For the instruction of the unwary harborage is given to poisonous plants like the water parsnip and hemlock, poison ivy and sumach, and to the pernicious parasite, the *Cuscuta* or dodder, the enemy of the cereals.

On the treeless slopes the prairie plants are well established,—euphorbias, liatras, asters, golden-rods, *petalostemums*, *Vernonia*, *Heliopsis* being the leading genera.

If we make any discrimination, it must be in favor of the ferns, for nowhere else do they grow more luxuriantly. The most spectacular features of the garden are a hillside completely covered with the interrupted fern (*Osmunda Claytoniana*) and the large clumps of maiden-hair, some of whose fronds measure a foot and a half across.* Ten species of ferns are indigenous to the garden and twenty-nine others have been introduced. Hence all the Minnesotan ferns are represented in the place except a few small or rare forms that are difficult of access, like some species of *Woodsia* and *Cheilanthes*, and the fragrant shield fern.

In the list of plants the Bryophytes must be enumerated,—among them abundant growths of the liverworts, *Conocephalus* and *Marchantia*, and mosses in great variety greening the earth and fallen tree trunks, as sphagnum, *Bryum*, *Leucobryum*, *Thuidium*, *Catharinea*, *Dicranum*, *Polytricum*, *Climacium*, and the rare *Timmæa*.

A bountiful harvest of mushrooms is gathered from the garden in their season,—agarics, boleti, polypori, huge puffballs, lepiotas, cup-fungi, and earth-stars. Stumps and fallen tree trunks are carefully cherished to furnish food for them. Tall trunks of dead trees also serve as a support for vines and as homes for birds that live in holes in trees.

Nearly four hundred species of plants have been introduced, embracing seventy-five families and two hundred and twenty-two genera. Together with the rich and varied indigenous flora, the greater number of the most notable plants of the state are now

* The ferns indigenous to the garden are,—*Botrichium virginicum*, *Osmunda Claytoniana*, *O. cinnamomea*, *Adiantum pedatum*, *Pteris aquilina*, *Asplenium filix-femina*, *Aspidium spinulosum*, *A. Thelypteris*, *A. cristatum*, *Onoclea sensibilis*.

represented in the garden. Maine, Nova Scotia, Massachusetts, New York and Wisconsin have furnished the place with barrelfuls of plants native to Minnesota, but more easily procurable in those states. On account of its geographical position Minnesota has a flora of a wide range, including representatives of alpine, forest, prairie, and drought regions. It is an interesting problem to adjust plants requiring such varying conditions to their life-relations. The largest plantings are made in the spring and fall; but plants often have been successfully lifted when in full bloom, particularly the hydrophytes. Annuals have also been transplanted by sods and have thereafter seeded themselves. But the attempt to establish sweet fern (*Myrica asplenifolia*) is as yet a failure, perhaps because it requires a poorer, or at least a different sort of soil.

The list of the indigenous plants is not yet complete, because many of the smaller herbs mature and complete their course concealed by the surrounding lush vegetation. Indeed, more than once, specimens from abroad have been planted, only later to find them indigenous and plentiful in some overlooked corner of the garden.

What remains to be done is to add the wanting specimens, increase the individuals of the most desirable plants, and to fill in the gaps made by those which die out from lack of vigor or unsuitable environment. A minute topographical survey of the garden is also to be made, and the position of the plants occupying each foot of space mapped out and designated by a reference number in the card catalogue which already records their general location and history.

A wild botanic garden similar to ours in design and scope was established some twenty years ago in St. John, New Brunswick by Dr. George U. Hay, the editor of "The Educational Review" and the writer of Canadian history. At this time Dr. Hay was teaching botany in the high school of St. John, and the immediate purpose of the garden was for the instruction of his pupils. We had supposed that the scheme of our garden was purely original until hearing of this place. My interest was so greatly aroused that I went expressly to New Brunswick to see it.

Dr. Hay's garden comprises about two acres, ideally situated on the St. John river, about twelve miles above the city of St. John, and is reached by the Canadian Pacific railway. It was his aim to bring together as much as possible of the flora of New Brunswick. He told me how the idea came to him. "I observed," said he, "when standing on this very spot, that without taking a step, but by merely stretching out my hand, I could touch eight different species of trees; and the thought occurred to me: 'Since nature has done so much for this place, why cannot I help on the work by doing a little more?'" Dr. Hay's garden is without a swamp, so that some of the plants that happily flourish in ours, lead in his a precarious existence. The essential features of a swamp are, however, somewhat supplied by a broad, winding brook, and his grounds are diversified by hill, valley and meadow. Most of all I coveted his possession of large boulders, which he had completely draped with the rock fern, *Polypodium vulgare*. How truly Dr. Hay had copied nature in this respect, I did not realize, until, shortly afterwards, I found at Taylor's Falls the very "moral" of those boulders in shape and size, and covered as

his was with polypody. Dr. Hay has succeeded in establishing in his garden specimens of all the trees, all the shrubs, and the most notable of the herbs of his province. Northern Minnesota and New Brunswick have many plants in common as the mountain cranberry, *Vaccinium Vitis-Idaea*, and the Huron wild tansy, *Tanacetum huroense*; but I was surprised when he pointed out as a rarity a lonely specimen of a box-elder tree, and again that the hackberry was wanting. His ferns were of great interest, there being splendid examples of massing of the ostrich, royal and lady ferns. Rare and tiny rock ferns peeped out from artfully constructed rockeries, which I supposed were natural, until informed to the contrary. There I saw the shield fern, named for the botanist, Goldie, which Goldie himself never saw growing, but which Dr. Hay had the great pleasure of showing to Goldie's son, when he visited the garden. My attention was also directed to a small specimen of the much bewritten bake-apple, *Rubus Chamaemorus*, on which a solitary, salmon-colored berry was maturing. During the growing season, many visitors from far and near present themselves in this trained wilderness for instruction and inspiration.

A wild garden is beautiful at all seasons. After the heavy frosts and before the kindly snow covers up in the cultivated gardens the unsightly, bare earth—suggestive of newly-made graves,—and the dead bodies of herbs, and the tender exotics, stiffly swathed in winding sheets of burlap or of straw, awaiting the spring resurrection, I turn with pride and relief to the wild garden, whose frozen ruins are graciously hidden by the shrubs, which then enliven the landscape with their glowing stems and fruits. And how lovely are the waving plumes of the grasses, how endless the varieties of seed-pods, how marvellous the modes of seed-dispersion! The eye, no longer distracted by the brilliant flower-mosaics, sees the less flaunting beauty and rediscovers "the commonplace of miracle."

I am not an enemy of formal or cultivated gardens; although I love wild gardens more and think our native plants superior, for the most part, to foreign ones in beauty and appropriateness. For plants from abroad, torn from their natural setting, often make a false note in the landscape. Cultivated gardens have their place, are seen at every hand, and need no advocacy. In fact, the founders of the wild garden are desirous to establish an artificial, botanic garden in connection with the wild one, wherein may be reared all the leading plants of the world that can grow in this climate; thus gratifying all tastes and affording at the same time inestimable advantages to students.

Why may not a large portion of the extensive Glenwood park be used for this purpose? Why can we not duplicate in Minneapolis the Shaw Gardens of St. Louis, the Bronx Gardens of New York city, or the world-famous Arnold Arboretum of Boston? Barring the primeval hemlock grove, Glenwood park has more natural advantages, as water supply, fertility and variety of soil, than the Arnold Arboretum. Such a garden would add greatly to the fame and attractiveness of Minneapolis, and would be second only to the public library in its educative and refining influences.